

computing a contribution from each vertex using the hash-value; and

combining with the computer the contribution from each vertex into a single interpolated result.

6. A method as described in Claim 5 wherein the computing the contribution step includes the steps of subtracting 28 from each u, v, w, computing a gradient direction from each hash value h_n , performing an inner product between the gradient direction and the associated fractional position from the associated vertex.

11. A method as described in Claim 10 wherein the using step includes the step of using the seven linear interpolations modules I, arranged into three successive stages, wherein a first stage of the three stages eight values are reduced to four values, interpolating in x; the second stage of the four values are reduced to two, interpolating in y; and the third stage, the two values are reduced to one, interpolating in z.

12. An apparatus for creating an appearance of texture in a computer image comprising:

a computer;

a mechanism for inputting a point $\{x_d\}$ in D-dimensional geometric space R^3 described via D M bit quantities i_d and D N bit quantities u_d , where i_d are M bit representations of greatest integers not $> x_d$ and u_d are N bit representations of remainders $(x_d - i_d)$, where M and N are integers ≥ 4 and $D=3$, in the computer;

A-4 a mechanism for computing a pseudo-random hash value at each vertex of a unit cube C surrounding the point;

a mechanism for computing a contribution from each vertex using the hash-value; and

a mechanism for combining with the computer the contribution from each vertex into a single interpolated result.